1st draft due: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Final draft due: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Problem of the Week: A Marching Strip**

Geometry/Algebra 2

Mr. Rodriguez



Ms. Smith wants to build a new rectangular courtyard on the blacktop. It will be laid out using square tiles. She has chosen some very pretty but inexpensive tiles. However, she wants some of the tiles to light up a la *Billie Jean*, and those tiles will be more expensive. The light-up tiles will always be on the diagonal, from one corner of the courtyard to the opposite corner. Every tile that contains a segment of the diagonal must be a light-up tile. If the tile touches the diagonal only at a corner, it can be a regular tile.

For example, the diagram at right shows what the situation would look like if Ms. Smith made a 4 x 6 courtyard. In this case, eight tiles form some portion of the diagonal, and so these would need to be light-up tiles. Ms. Smith wants to know how many of these special tiles she needs to order. She is planning to have a 63-by-90 courtyard.

She might change her mind about the size of the courtyard, so it would be helpful to know a general formula that would work with any size courtyard. That is, suppose the courtyard has ***r*** rows and ***c*** tiles in each row. How many light-up tiles would she need?



1st draft due: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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